Journal of
POLYMER SCIENCE

VOLUME XXXIX·1959

Editorial Board:
P. M. DOTY • R. M. FUOSS • H. MARK • C. G. OVERBERGER • G. SMETS

Advisory Board:

T. ALFREY, JR. *Midland, Mich.*	F. EIRICH *Brooklyn, N. Y.*	G. NATTA *Milan*
W. O. BAKER *Murray Hill, N. J.*	P. J. FLORY *Ithaca, N. Y.*	A. PETERLIN *Ljubljana*
P. D. BARTLETT *Cambridge, Mass.*	N. G. GAYLORD *New York, N. Y.*	C. C. PRICE *Philadelphia, Pa.*
H. BENOIT *Strasbourg*	G. GEE *Welyn Garden City*	CH. SADRON *Strasbourg*
E. R. BLOUT *Cambridge, Mass.*	A. KATCHALSKY *Rehovot*	G. V. SCHULZ *Mainz*
J. W. BREITENBACH *Vienna*	G. M. KLINE *Washington, D. C.*	H. M. SPURLIN *Wilmington, Del.*
C. W. BUNN *Welwyn Garden City*	I. M. KOLTHOFF *Minneaplis, Minn.*	A. J. STAVERMAN *Dleft*
G. M. BURNETT *Aberdeen*	W. KUHN *Basel*	W. H. STOCKMAYER *Cambridge, Mass.*
S. CLAESSON *Uppsala*	M. MAGAT *Paris*	A. V. TOBOLSKY *Princeton, N. J.*
F. S. DAINTON *Leeds*	C. S. MARVEL *Urbana, Ill.*	K. UEBERREITER *Berlin*
P. DEBYE *Ithaca, N. Y.*	H. W. MELVILLE *Birmingham*	B. H. ZIMM *Schenectady, N. Y.*

INTERSCIENCE PUBLISHERS, INC.

© 1959, by Interscience Publishers, Inc.

CONTENTS

Vol. XXXIX, Issue No. 135, 1959

Journal of Polymer Science

ISSUE NO. 135, SEPTEMBER

A. J. G. ALLAN and R. ROBERTS: Wettability of Perfluorocarbon Polymer Films: Effect of Roughness 1

M. M. HUQUE, J. JAWORZYN, and D. A. I. GORING: Ultraclarification of Solutions for Light-Scattering Measurements 9

DERICK W. OVENALL: Electron Resonance Measurements on Radicals in Gamma-Irradiated Polydimethyl Itaconate 21

GIULIO NATTA and PAOLO CORRADINI: Conformation of Linear Chains and Their Mode of Packing in the Crystal State 29

IAN D. ROBINSON, M. FERNANDEZ-ROFOJO, and HAROLD G. CASSIDY: Electron Exchange Polymers. XI. Oxidation Potentials and Spectra of Water-Soluble Hydroquinones and Polymeric Hydroquinones 47

A. BERESNIEWICZ: The Relations between Intrinsic Viscosity and Molecular Weight for Partially Alcoholized Polyvinyl Acetates. 63

A. D. JENKINS and R. JOHNSTON: Chain Transfer to a Mixture of Agents: The Anomalous Behavior of the Acrylonitrile–Dimethylformamide–Water System 81

HERBERT W. MCCORMICK, FRANK M. BROWER, and LEO KIN: The Effect of Molecular Weight Distribution on the Physical Properties of Polystyrene 87

H. D. KEITH and F. J. PADDEN, JR.: The Optical Behavior of Spherulites in Crystalline Polymers. Part I. Calculation of Theoretical Extinction Patterns in Spherulites with Twisting Crystalline Orientation 101

H. D. KEITH and F. J. PADDEN, JR.: The Optical Behavior of Spherulites in Crystalline Polymers. Part II. The Growth and Structure of the Spherulites 123

FRASER P. PRICE: On Extinction Patterns of Polymer Spherulites.. 139

A. KELLER: Investigations on Banded Spherulites 151

L. C. CASE: Molecular Distributions in Polycondensations Involving Unlike Reactants. V. Particularly Narrow Distributions 175

L. C. CASE: Molecular Distributions in Polycondensations Involving Unlike Reactants. VI. Independently Distributed Multivariate Distributions 183

A. HORTH, D. PATTERSON, and M. RINFRET: The Apparent Specific Volume of Polymers in Dilute Solution 189

Y. IWAKURA, T. TAMIKADO, M. YAMAGUCHI, and K. TAKEI: Copolymerization of Acrylonitrile and Vinyl Pyridine 203

N. Grassie and I. C. McNeill: Thermal Degradation of Polymethacrylonitrile. Part V. The Mechanism of the Initiation Step in Coloration Reactions 211
S. Loshaek, Edward Broderick, and Philip Bernstein: The Kinetics of Polymerization of α-Vinylnaphthalene 223
S. Loshaek and Edward Broderick: Reactivity Ratios and Rates in the Copolymerization of α-Vinylnaphthalene and Styrene ... 241
Robert L. Cleland, Robert L. Letsinger, Eugene E. Magat, and W. H. Stockmayer: Kinetics of the Alfin Polymerization of Styrene and Isoprene 249
C. Y. Liang and R. H. Marchessault: Infrared Spectra of Crystalline Polysaccharides. II. Native Celluloses in the Region from 640 to 1700 cm.$^{-1}$ 269
F. S. Dainton and P. H. Seaman: The Polymerization of Acrylonitrile in Aqueous Solution. Part I. The Reaction Catalyzed by Fenton's Reagent at 25°C 279
F. S. Dainton and D. G. L. James: The Polymerization of Acrylonitrile in Aqueous Solution. Part II. The Reaction Photosensitized by Fe^{3+}, $Fe^{3+}OH^-$, Fe^{2+}, and I^- Ions 299
F. S. Dainton and R. S. Eaton: The Polymerization of Acrylonitrile in Aqueous Solutiln. Part III. The Ferric Ion-Photosensitized Reaction at 15, 25, 30, and 50°C 313
J. W. L. Fordham: Stereoregulated Polymerization in the Free Propagating Species. I. Theory 321
J. W. L. Fordham, G. H. McCain, and L. E. Alexander: Stereoregulated Polymerization in the Free Propagating Species. II. Effect of Monomer Structure on the Polymerization of Vinyl Esters 335
Albert Zilkha, Ariel Ottolenghi, and Max Frankel: Studies on the Low Pressure Polymerization of Ethylene by use of Catalysts Containing Potassium Alkyls 347
G. Platau, F. R. Eirich, R. B. Mesrobian, and A. E. Woodward: Chain Transfer of Styrene and *p*-Chlorostyrene with Benzaldehyde and *p*-Chlorobenzaldehyde 357
Suresh N. Chinai and Richard J. Valles: Comparison of Unperturbed Molecular Parameters of Methacrylate Polymers 363
Hidehiko Kobayashi: Molecular Weight Dependence of Intrinsic Viscosity, Diffusion Constant, and Second Virial Coefficient of Polyacrylonitrile 369
N. Ise and M. Hosono: Electrostatic Interaction in Dilute Solutions of Polyelectrolytes 389
N. Ise: Effects of Temperature on the Titration Curve and Molecular Extension of Polyelectrolytes 413
E. G. Cockbain, T. D. Pendle, and D. T. Turner: Formation of Graft Polymers by γ-Irradiation of Natural Rubber Latex and Methyl Methacrylate 419
Hiroshi Sobue and Yoneho Tabata: Orientation of Isotactic Polypropylene Filament and Its New Crystalline Structure Produced by High Stretching 427
Nishio Hirai: The Viscosities of Concentrated Polymer Solutions. I. Moderately Concentrated Solutions 435
R. Koningsveld and C. A. F. Tuijnman: Calculation of the Molecular Weight Distribution of Polymers from Experimental Data .. 445

H. J. MARRINAN: The Infrared Dichroism of a Stretched Polymer. Part I. The Theoretical Treatment of Rubberlike Polymers... 461
J. POLÁČEK: Single-Point Determination of Viscosity..... 469
CHUJI ASO: Polymerization of Ethylene Glycol Dimethacrylate.... 475
T. HIGASHIMURA, T. YONEZAWA, S. OKAMURA, and K. FUKUI: Theoretical Considerations on the Mechanism of Stereospecific Cationic Polymerization in Homogeneous Systems..... 487
HOWARD C. HAAS: The Decomposition of Benzoyl Peroxide in Polystyrene..... 493
J. P. KENNEDY and C. M. FONTANA: The Thermal Degradation of Polyacrylonitrile..... 501
SEIZO OKAMURA, TOSHINOBU HIGASHIMURA, and ICHIRO SAKURADA: Stereospecific Polymerization of Isobutyl Vinyl Ether in Homogeneous Cationic Systems..... 507
G. MINO, S. KAIZERMAN, and E. RASMUSSEN: The Oxidation of Polyvinyl Alcohol by Ceric Ion..... 523

LETTERS TO THE EDITORS

L. T. MUUS and F. W. BILLMEYER, JR.: Solution Studies of Some Polyethylene Samples..... 531
D. J. SHIELDS and H. W. COOVER, JR.: Crystalline Poly(*N*-isopropylacrylamide)..... 532
C. LOUCHEUX, G. WEILL, et H. BENOIT: Etude critique de l'interprétation des données de la diffusion de la lumière quand il y a effet de volume..... 533
C. A. BOYE, JR., M. T. WATSON, and H. W. PATTON: Comments on the Structure of Quenched Isotactic Polypropylene..... 535
R. W. HUMMEL and R. L. VALE: The Application of Photochemical Principles to Radiation Chemistry..... 537
GEORGE E. ASHBY and DONALD F. HOEG: Concerning the Measurement of Isotacticity in Propylene Polymers..... 538

NOTES

A C. CHATTERJI and H. N. BHARGAVA: Graham's Salt: A Note on the Relation Between the Endgroup Molecular Weight and the Weight-Average Molecular Weight..... 543
A. G. M. LAST: Nucleation Effects in High Polymers..... 543
NORMAN G. GAYLORD and SHLOMO ROSENBAUM: Intrinsic Viscosity and Molecular Weight of Polyethylene Terephthalate..... 545
G. J. HOWARD: Molecular Weight Distribution of Nylon 66..... 548
WILLIAM HODES and ARNOLD DRUCKER: Stereospecific Copolymerization of Methylstyrenes..... 549
S. N. MUKHERJEE and VIRENDRA KUMAR KULSHRESTHA: Physico-Chemical Studies on Indian Plant Gums. Viscometric Titrations of Acacia Catechuic Acid..... 552
S. M. HIRSHFIELD and E. R. ALLEN: A New Technique for the Precipitation of a Polymer..... 554
D. HYNDMAN and G. F. ORIGLIO: Nuclear Magnetic Resonance in Polyethylene and Polypropylene Fibers..... 556

BOOK REVIEW

Big Molecules, Sir Harry Melville. Reviewed by H. MARK 542

Polymer News 542
Abstracts from *High Molecular Weight Compounds* (*Visoko Molecularnje Sojedinenja*), March 1959 559

Author Index, Volume XXXIX 567
Subject Index, Volume XXXIX 569

INDEX

AUTHOR INDEX, VOLUME XXXIX

Alexander, L. E.: See Fordham, J. W. L.
Allan, A. J. G., and Roberts, R.: Wettability of perfluorocarbon polymer films: Effect of roughness: 1
Allen, E. R.: see Hirshfield, S. M.
Ashby, G. E., and Hoeg, D. F.: Concerning the measurement of isotacticity in propylene polymers, 538
Aso, C.: Polymerization of ethylene glycol dimethacrylate, 475
Benoit, H.: see Loucheux, C.
Beresniewicz, A.: The relations between intrinsic viscosity and molecular weight for partially alcoholized polyvinyl acetates, 63
Bernstein, P.: see Loshaek, S.
Bhargava, H. N.: see Chatterji, A. C.
Billmeyer, F. W., Jr.: see Muus, L. T.
Boye, C. A., Jr., Watson, M. T., and Patton, H. W.: Comments on the structure of quenched isotactic polypropylene, 535
Broderick, E.: see Loshaek, S.
Brower, F. M.: see McCormick, H. W.
Case, L. C.: Molecular distributions in polycondensations involving unlike reactants. V. Particularly narrow distributions, 175
——: Molecular distributions in polycondensations involving unlike reactants. VI. Independently distributed multivariate distributions, 183
Cassidy, H. G.: see Robinson, I. D.
Chatterji, A. C., and Bhargava, H. N.: Graham's salt: A note on the relation between the endgroup molecular weight and the weight-average molecular weight, 543
Chinai, S. N., and Valles, R. J.: Comparison of unperturbed molecular parameters of methacrylate polymers, 363
Cleland, R. L., Letsinger, R. L., Magat, E. E., and Stockmayer, W. H.: Kinetics of the alfin polymerization of styrene and isoprene, 249
Cockbain, E. G., Pendle, T. D., and Turner, D. T.: Formation of graft polymers by γ-irradiation of natural rubber latex and methyl methacrylate, 419
Coover, H. W., Jr.: see Shields, D. J.
Corradini, P.: see Natta, G.
Dainton, F. S., and Eaton, R. S.: The polymerization of acrylonitrile in aqueous solution. Part III. The ferric ion-photosynthesized reaction at 15, 25, 30, and 50°C., 313
——, and James, D. G. L.: The polymerization of acrylonitrile in aqueous solution. Part II. The reaction photosensitized by Fe^{3+}, $Fe^{3+}OH^-$, Fe^{2+}, and I^- ions, 299
——, and Seaman, P. H.: The polymerization of acrylonitrile in aqueous solution. Part I. The reaction catalyzed by Fenton's Reagent at 25°C., 279
Drucker, A.: see Hodes, W.
Eaton, R. S.: see Dainton, F. S.
Eirich, F. R.: see Platau, G.
Fernandez-Rofojo, M.: see Robinson, I.
Fontana, C. M.: see Kennedy, J. P.
Fordham, J. W. L.: Stereoregulated polymerization in the free propagating species. I. Theory, 321
——, McCain, G. H., and Alexander, L. E.: Stereoregulated polymerization in the free propagating species. II. Effect of monomer structure on the polymerization of vinyl esters, 335
Frankel, M.: see Zilkha, A.
Fukui, K.: see Higashimura, T.
Gaylord, N. G., and Rosenbaum, S.: Instrinsic viscosity and molecular weight of polyethylene terephthalate, 545
Goring, D. A. I.: see Huque, M. M.
Grassie, N., and McNeill, I. C.: Thermal degradation of polymethacrylonitrile. Part V. The mechanism of the initiation step in coloration reactions, 211
Haas, H. C.: The decomposition of benzoyl peroxide in polystyrene, 493
Higashimura, T., Yonezawa, T., Okamura, S., and Fukui, K.: Theoretical considerations on the mechanism of stereospecific cationic polymerization in homogeneous systems, 487
——: see Okamura, S.
Hirai, N.: The viscosities of concentrated polymer solutions. I. Moderately concentrated solutions, 435
Hirshfield, S. M., and Allen, E. R.: A new technique for the precipitation of a polymer, 554
Hodes, W., and Drucker, A.: Stereospecific copolymerization of methylstyrenes, 549
Hoeg, D. F.: see Ashby, G. E.
Horth, A., Patterson, D., and Rinfret, M.: The apparent specific volume of polymers in dilute solution, 189
Hosono, M.: see Ise, N.
Howard, G. J.: Molecular weight distribution of nylon 66, 548
Hummel, R. W., and Vale, R. L.: The application of photochemical principles to radiation chemistry, 537
Huque, M. M., Jaworzyn, J., and Goring, D. A. I.: Ultraclarification of solutions for light-scattering measurements, 9
Hyndman, D., and Origlio, G. F.: Nuclear magnetic resonance in polyethylene and polypropylene fibers, 556
Ise, N.: Effect of temperature on the ti-

tration curve and molecular extension of polyelectrolytes, 413
——, and Hosono, M.: Electrostatic interaction in dilute solutions of polyelectrolytes, 389
Iwakura, Y., Tamikado, T., Yamaguchi, M., and Takei, K.: Copolymerization of acrylonitrile and vinyl pyridine, 203
James, D. G. L.: see Dainton, F. S.
Jaworzyn, J.: see Huque, M. M.
Jenkins, A. D., and Johnston, R.: Chain transfer to a mixture of agents: The anomalous behavior of the acrylonitrile–dimethylformamide–water system, 81
Johnston, R.: see Jenkins, A. D.
Kaizerman, S.: see Mino, G.
Keith, H. D., and Padden, F. J., Jr.: The optical behavior of spherulites in crystalline polymers. Part I. Calculation of theoretical extinction patterns in spherulites with twisting crytalline orientation, 101
——, and ——: The optical behavior of spherulites in crystalline polymers. Part II. The growth and structure of the spherulites, 123
Keller, A.: Investigations on banded spherulites, 151
Kennedy, J. P., and Fontana, C. M.: The thermal degradation of polyacrylonitrile, 501
Kin, L.: see McCormick, H. W.
Kobayashi, H.: Molecular weight dependence of intrinsic viscosity, diffusion constant, and second virial coefficient of polyacrylonitrile, 369
Koningsveld, R., and Tuijnman, C. A. F.: Calculation of the molecular weight distribution of polymers from experimental data, 445
Kulshrestha, V. K.: see Mukherjee, S. N.
Last, A. G. M.: Nucleation effects in high polymers, 543
Letsinger, R. L.: see Cleland, R. L.
Liang, C. Y., and Marchessault, R. H.: Infrared spectra of crystalline polysaccharides. II. Native celluloses in the region from 640 to 1700 cm.$^{-1}$, 269
Loshaek, S., and Broderick, E.: Reactivity ratios and rates in the copolymerization of α-vinylnaphthalene, and styrene, 241
——, ——, and Bernstein, P.: The kinetics of polymerization of α-vinylnaphthalene, 223
Loucheux, C., Weill, G., et Benoit, H.: Etude critique de l'interprétation des données de la diffusion de la lumière quand il y a effet de volume, 533
McCain, G. H.: see Fordham, J. W. L.
McCormick, H. W., Brower, F. M., and Kin, L.: The effect of molecular weight distribution on the physical properties of polystyrene, 87
McNeill, I. C.: see Grassie, N.
Magat, E. E.: see Cleland, R. L.
Marchessault, R. H.: see Liang, C. Y.
Marrian, H. J.: The infrared dichroism of a stretched polymer. Part I. The theoretical treatment of rubberlike polymers, 461
Mesrobian, R. B.: see Platau, G.
Mino, G., Kaizerman, S., and Rasmussen, E.: The oxidation of polyvinyl alcohol by ceric ion, 523
Mukherjee, S. N., and Kulshrestha, V. K.: Physico-chemical studies on indian plant gums. Viscometric titrations of acacia catechuic acid, 552
Muus, L. T., and Billmeyer, F. W., Jr.: Solution studies of some polyethylene samples, 531
Natta, G., and Corradini, P.: Conformation of linear chains and their mode of packing in the crystal state, 29
Okamura, S., Higashimura, T., and Sakurada, I.: Stereospecific polymerization of isobutyl vinyl ether in homogeneous cationic systems, 507
——: see Higashimura, T.
Origlio, G. F.: see Hyndman, D.
Ottolenghi, A.: see Zilkha, A.
Ovenall, D. W.: Electron resonance measurements on radicals in gamma-irradiated polydimethyl itaconate, 21
Padden, F. J., Jr.: see Keith, H. D.
Patterson, D.: see Horth, A.
Patton, H. W.: see Boye, C. A., Jr.
Pendle, T. D.: see Cockbain, E. G.
Platau, G., Eirich, F. R., Mesrobian, R. B., and Woodward, A. E.: Chain transfer of styrene and *p*-chlorostyrene with benzaldehyde and *p*-chlorobenzaldehyde, 357
Poláček, J.: Single-point determinations of viscosity, 469
Price, F. P.: On extinction patterns of polymer spherulites, 139
Rasmussen, E.: see Mino, G.
Rinfret, M.: see Horth, A.
Roberts, R.: see Allan, A. J. G.
Robinson, I. D., Fernandez-Rofojo, M., and Cassidy, H. G.: Electron exchange polymers. XI. Oxidation potentials and spectra of water-soluble hydroquinones and polymeric hydroquinones, 47
Rosenbaum, S.: see Gaylord, N. G.
Sakurada, I.: see Okamura, S.
Seaman, P. H.: see Dainton, F. S.
Shields, D. J., and Coover, H. W., Jr.: Crystalline poly(*N*-isopropylacrylamide), 532
Sobue, H., and Tabata, Y.: Orientation of isotactic polypropylene filament and its new crystalline structure produced by high stretching, 427
Stockmayer, W. H.: see Cleland, R. L.
Tabata, Y.: see Sobue, H.
Takei, K.: see Iwakura, Y.
Tamikado, T.: see Iwakura, Y.
Tuijnman, C. A. F.: see Koningsveld, R.
Turner, D. T.: see Cockbain, E. G.
Vale, R. L.: see Hummel, R. W.
Valles, R. J.: see Chinai, S. N.
Watson, M. T.: see Boye, C. A., Jr.
Weill, G.: see Loucheux, C.
Woodward, A. E.: see Platau, G.
Yamaguchi, M.: see Iwakura, Y.
Yonezawa, T.: see Higashimura, T.
Zilkha, A., Ottolenghi, A., and Frankel, M.: Studies on the low pressure polymerization of ethylene by use of catalysts containing potassium alkyls, 347

SUBJECT INDEX, VOLUME XXXIX

Acrylonitrile, anomalous behavior in dimethylformamide–water system, 81
copolymerization with vinylpyridine, 203
polymerization, 279, 299, 315
Alfin polymerization, styrene and isoprene, 249
Benzaldehyde, and *p*-chlorobenzaldehyde, chain transfer with styrene and *p*-chlorostyrene, 357
Benzoyl peroxide, decomposition in polystyrene, 493
Catalysts, potassium alkyls as, 347
Celluloses, infrared spectra, 269
Chain transfer, mixture of agents, 81
styrene and *p*-chlorostyrene with benzaldehyde and *p*-chlorobenzaldehyde, 357
p-Chlorobenzaldehyde, and benzaldehyde, chain transfer with styrene and *p*-chlorostyrene, 357
p-Chlorostyrene, and styrene, chain transfer with benzaldehyde and *p*-chlorobenzaldehyde, 357
Decomposition, benzoyl peroxide in polystyrene, 493
Diffusion constant, molecular weight dependence, in polyacrylonitrile, 369
Dimethylformamide, anomalous behavior in acrylonitrile–water system, 81
Electron exchange polymers, 47
Electron resonance measurements, of radicals in γ-irradiated polydimethyl itaconate, 21
Ethylene, low pressure polymerization, 347
Ethylene glycol dimethacrylate, polymerization, 475
Extinction patterns, spherulites, 101, 139
Graft polymers, formation by γ-irradiation, 413
Hydroquinones, water soluble and polymeric, oxidation potentials and spectra, 47
Indian plant gums, physico-chemical studies, 552
Infrared dichroism, of stretched polymer, 461
Infrared spectra, celluloses, 269
polysaccharides, 269
Intrinsic viscosity, molecular weight dependence, in polyacrylonitrile, 369
polyethylene terephthalate, 545
relation to molecular weight in partially alcoholized polyvinyl acetates, 63
Isobutyl vinyl ether, stereospecific polymerization, 507
Isoprene, alfin polymerization with styrene, 249
Isotactic polypropylene, structure, 535
Kinetics, alfin polymerization of styrene and isoprene, 249
λ-vinylnaphthalene polymerization, 223
Light diffusion, and volume effect, 533
Light-scattering measurements, ultraclarification for, 9
Linear chains, conformation, 29
Low pressure polymerization, ethylene, 347
Methacrylate polymers, unperturbed molecular parameters, 363
Methyl methacrylate, graft polymers with natural rubber latex, 419
Methylstyrenes, stereospecific copolymerization, 549
Molecular distributions, in polycondensations, 175, 183
Molecular weight, endgroup and weight-average, 543
polyethylene terephthalate, 545
relation to intrinsic viscosity in partially alcoholized polyvinyl acetates, 63
Molecular weight distribution, calculation of, 445
effect on polystyrene, 87
nylon 66, 548
Nucleation effects, 543
Nylon 66, molecular weight distribution, 548
Optical behavior, spherulites, 101, 123
Oxidation potentials, hydroquinones, 47
Perfluorocarbon polymer films, wettability 1
Polyacrylonitrile, intrinsic viscosity, diffusion constant, and second virial coefficient of, 369
thermal degradation, 501
Polycondensations, molecular distributions in, 175, 183
Polydimethyl itaconate, electron resonance measurements, 21
Polyelectrolytes, electrostatic interaction of, 389
temperature effect on titration curve and molecular extension, 413
Polyethylene, solution studies, 531
Polyethylene fibers, nuclear magnetic resonance, 556
Polyethylene terephthalate, intrinsic viscosity and molecular weight, 545
Poly(*N*-isopropylacrylamide), crystalline, 532
Polymethacrylonitrile, thermal degradation, 211
Polypropylene fibers, nuclear magnetic resonance, 556
Polypropylene filament, isotactic, orientation, 427

Polysaccharides, infrared spectra, 269
Polystyrene, and decomposition of benzoyl peroxide, 493
molecular weight distribution, 87
Polyvinyl acetates, partially alcoholized, relations between intrinsic viscosity and molecular weight, 63
Polyvinyl alcohol, oxidation of, 523
Potassium alkyls, as catalysts, 347
Precipitation, of a polymer, 554
Propylene polymers, measurement of isotacticity in, 538
Radiation chemistry, photochemical principles, 537
Rubber latex, graft polymers with methyl methacrylate, 419
Rubberlike polymers, infrared dichroism, 461
Second virial coefficient, molecular weight dependence, in polyacrylonitrile, 369
Specific volume, in dilute solution, 189
Spectra, hydroquinones, 47
Spherulites, banded, 151
extinction patterns, 101, 139
optical behavior, 101, 123
Stereoregulated polymerization, 321, 335
Stereospecific cationic polymerization, in homogeneous systems, 487
Stereospecific copolymerization, methylstyrenes, 549
Stereospecific polymerization, isobutyl vinyl ether, 507
Structure, spherulites, 123
Styrene, alfin polymerization with isoprene, 249
and *p*-chlorostyrene, chain transfer with benzaldehyde and *p*-chlorobenzaldehyde, 357
copolymerization with α-vinylnaphthalene, reactivity ratios, 241
Thermal degradation, polyacrylonitrile, 501
polymethacrylonitrile, 211
Vinyl esters, polymerization, 335
α-Vinylnaphthalene, copolymerization with styrene, reactivity ratios, 241
α-Vinylnaphthalene polymerization, kinetics, 223
Vinyl pyridine, copolymerization with acrylonitrile, 203
Viscosity, concentrated polymer solutions, 435
single-point determination, 469